

FIG.2A

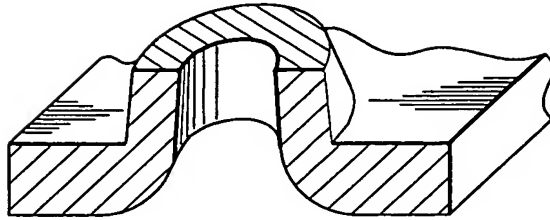


FIG.2B

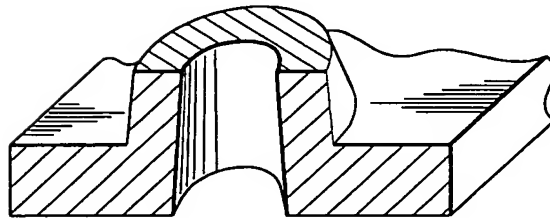


FIG.2C

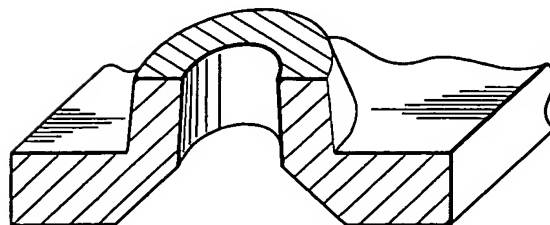


FIG.3A

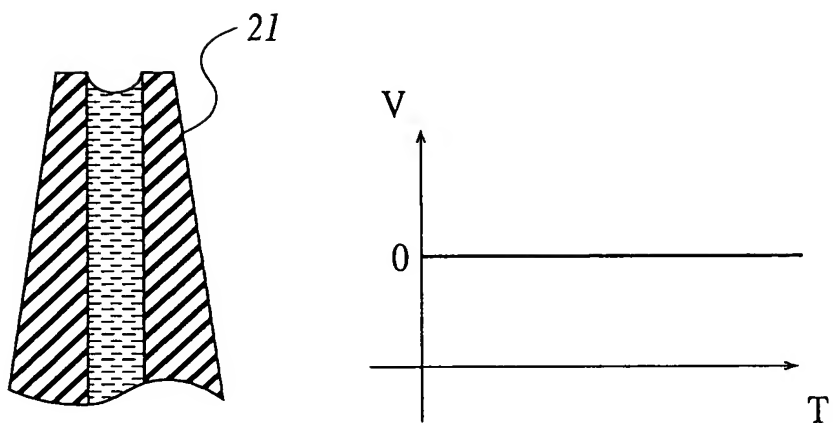


FIG.3B

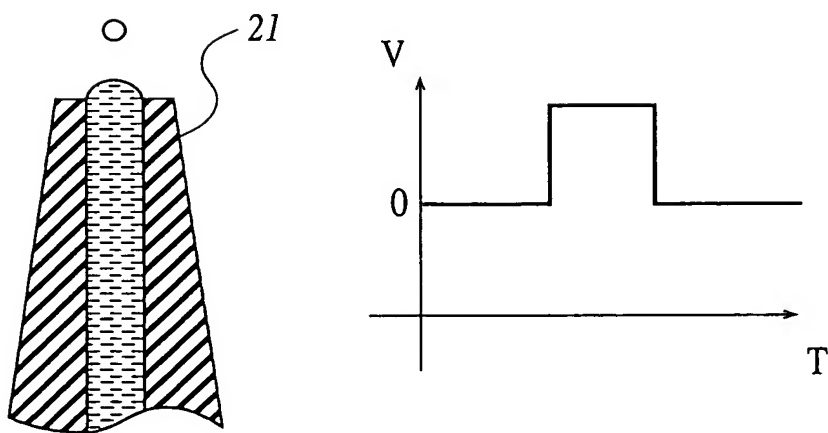


FIG.4

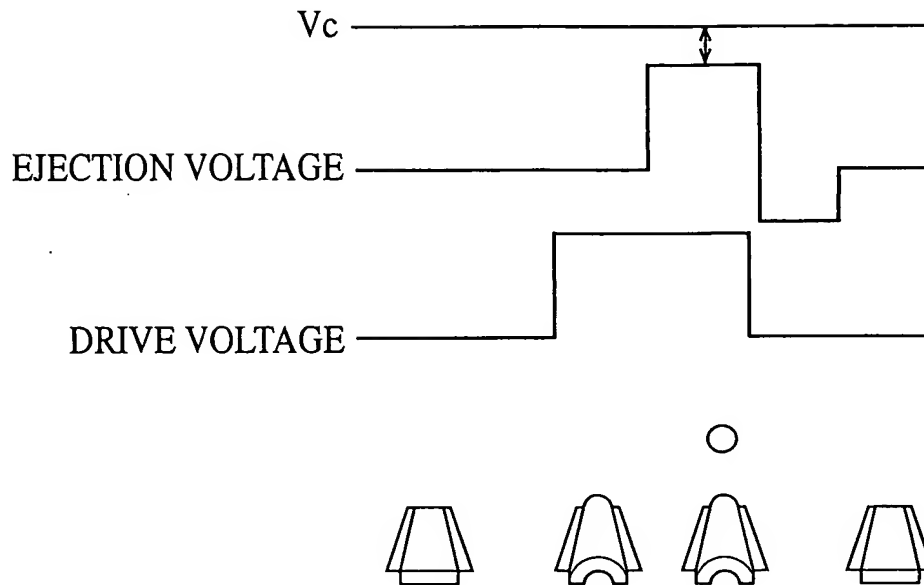


FIG.5

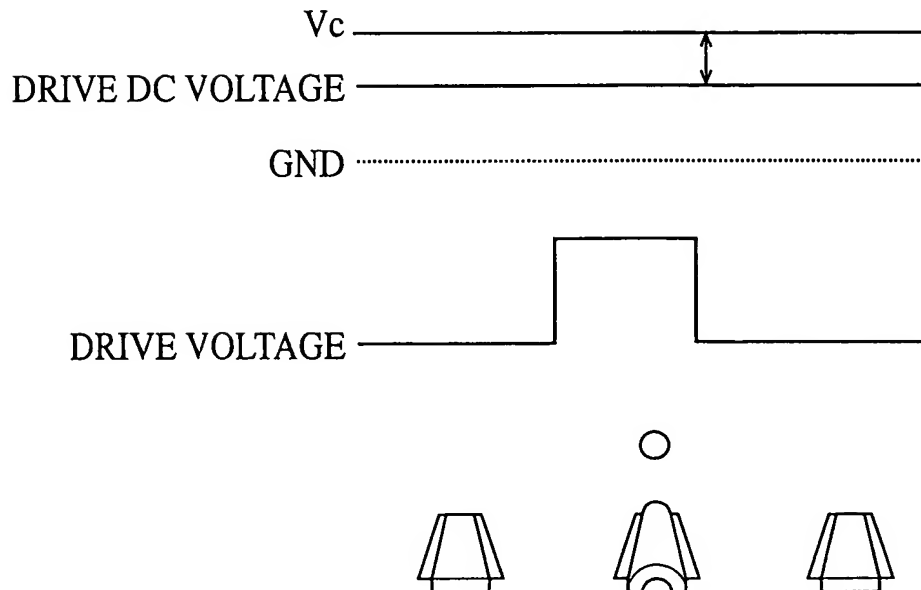


FIG. 6

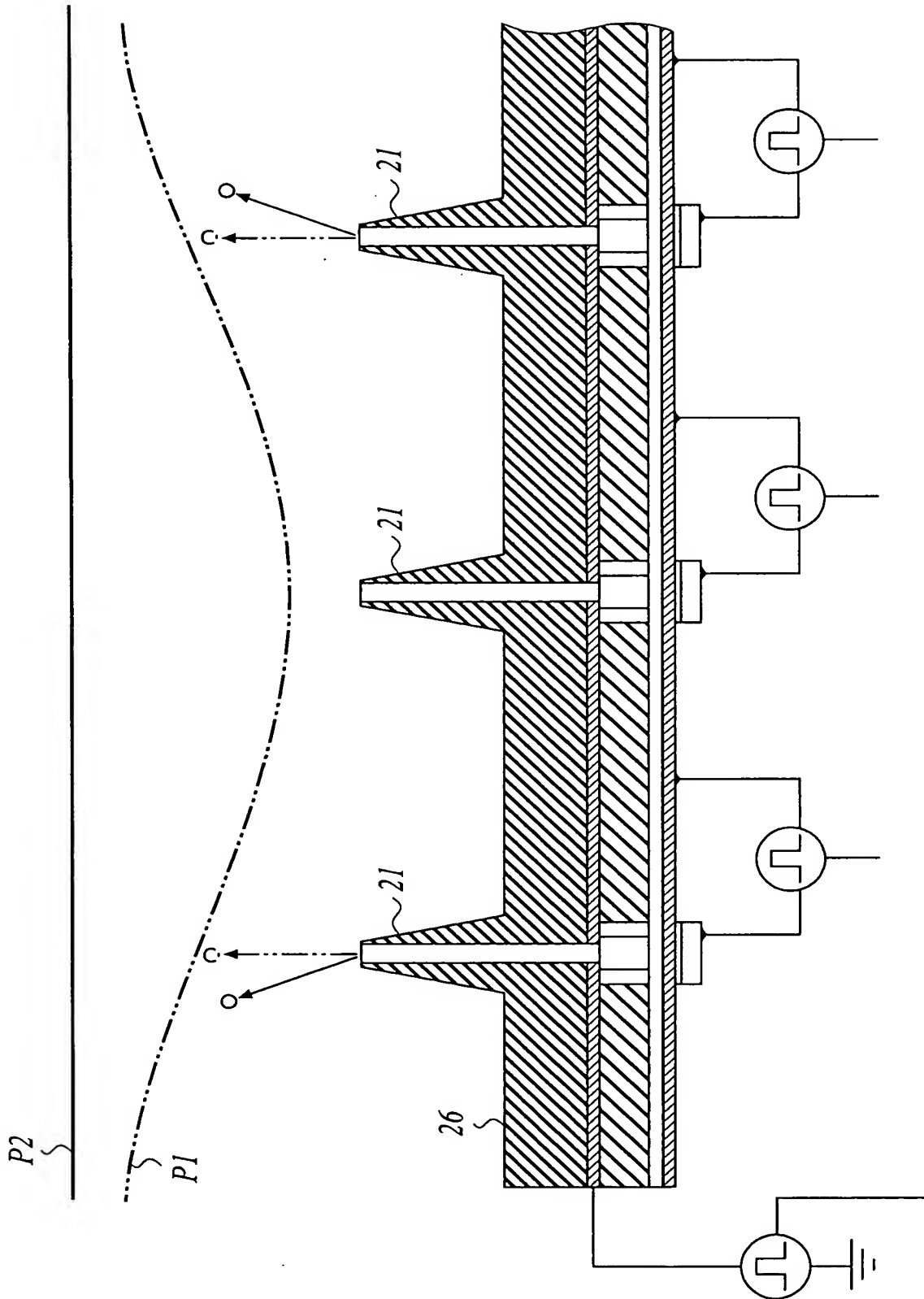


FIG. 7

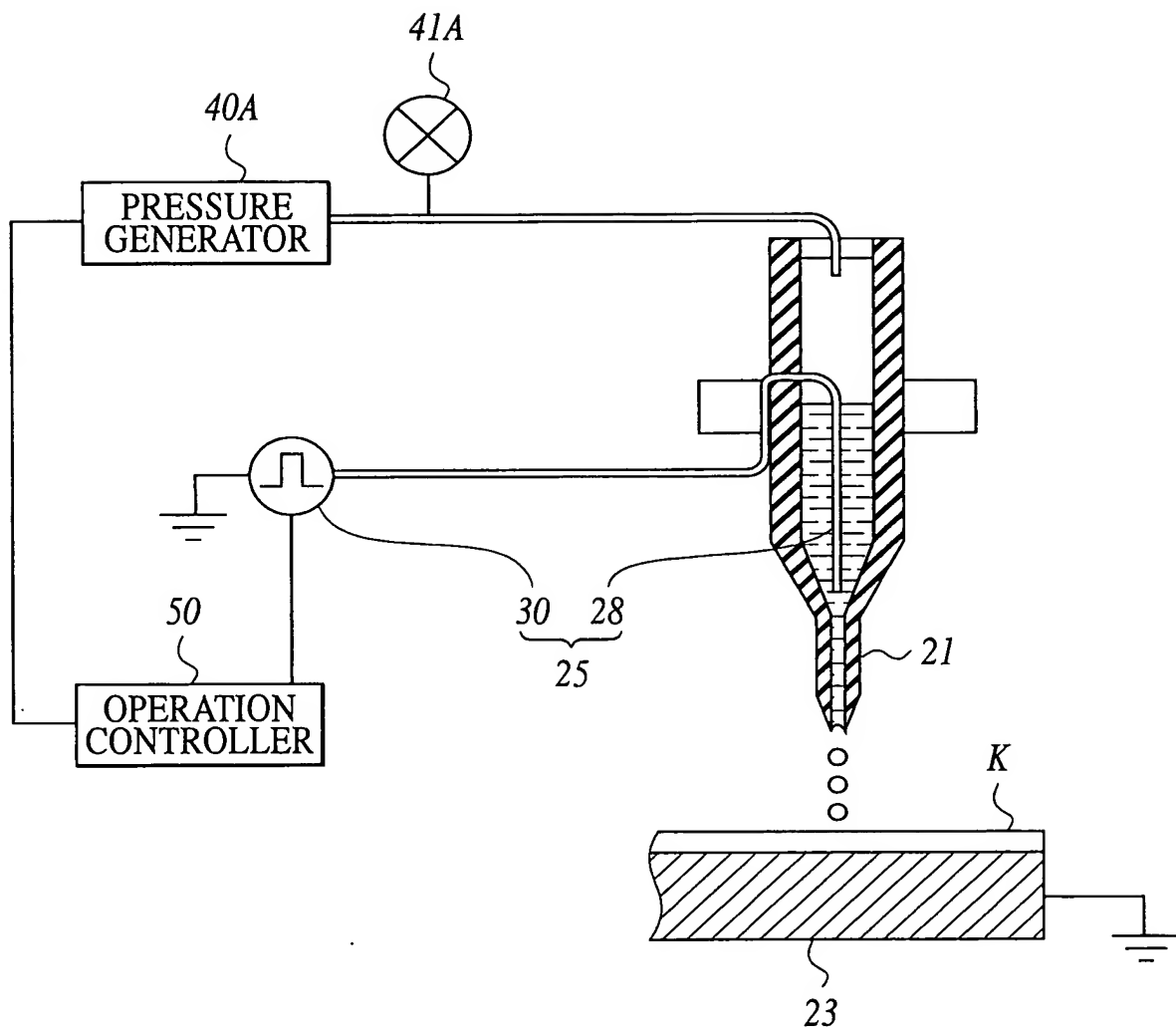


FIG.8

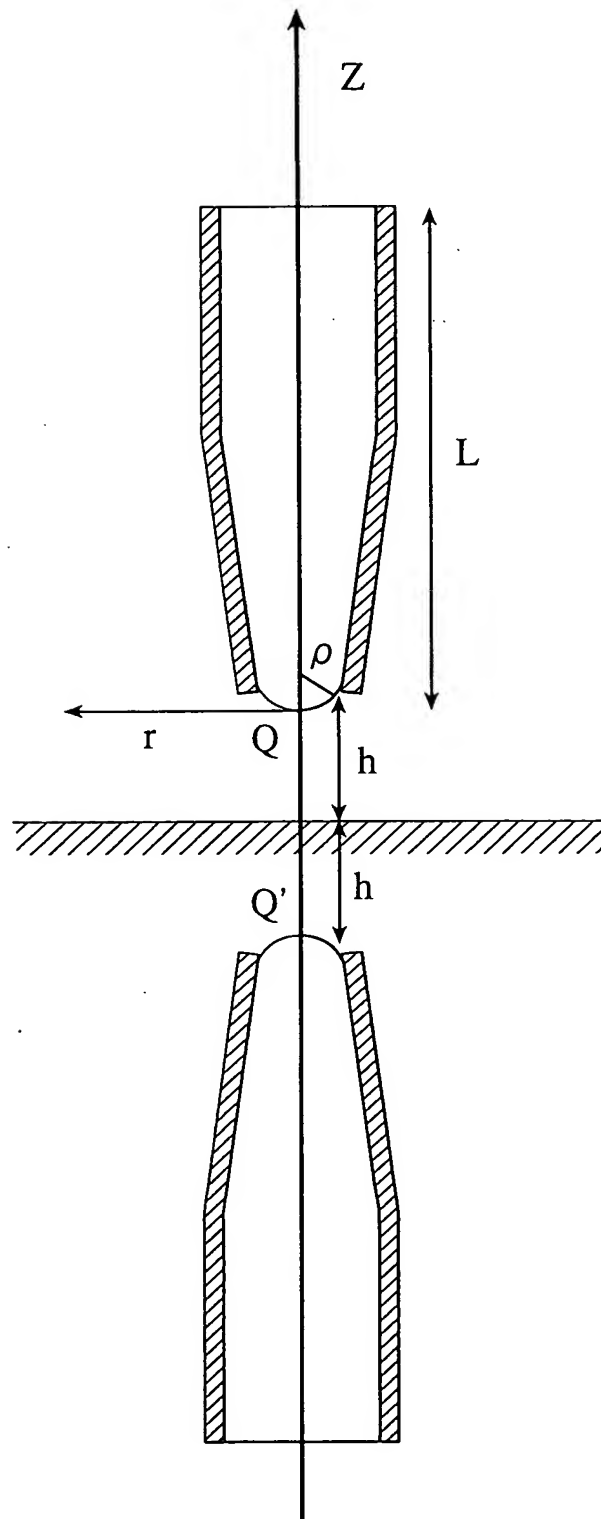


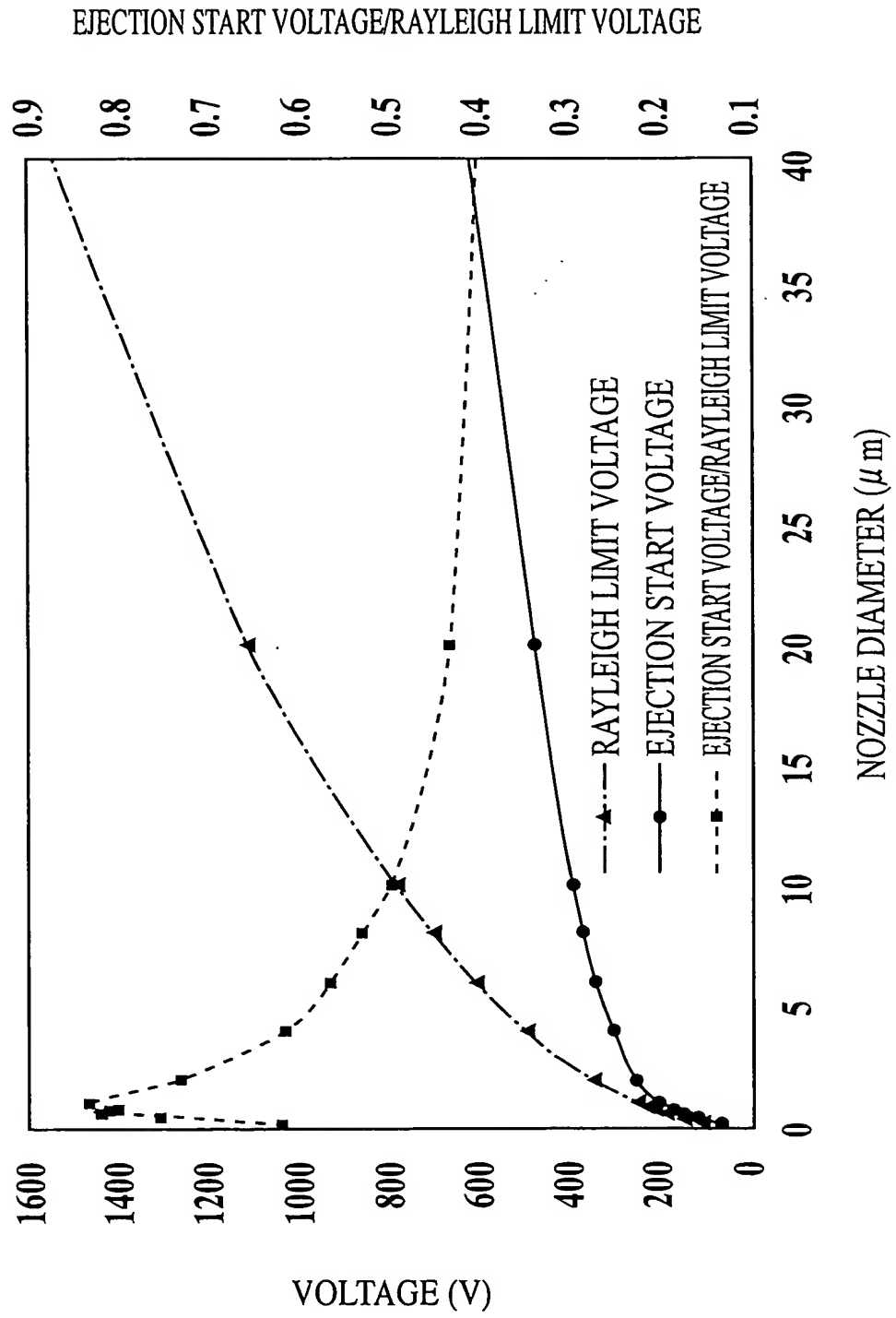
FIG9

FIG.10

NOZZLE DIAMETER (μm)	MAXIMUM ELECTRIC FIELD INTENSITY(V/m)		DEVIATION RATE (%)
	GAP 100 (μm)	GAP 2000 (μm)	
0.2	2.001×10^9	2.00005×10^9	0.05
0.4	1.001×10^9	1.00005×10^9	0.09
1	0.401002×10^9	0.40005×10^9	0.24
4	0.1010903×10^9	0.100112×10^9	0.97
8	0.0510196×10^9	0.05005×10^9	1.94
10	0.0410563×10^9	0.0400661×10^9	2.47
15	0.0277099×10^9	0.0267170×10^9	3.72
20	0.0210476×10^9	0.0200501×10^9	4.98
50	0.00911111×10^9	0.00805×10^9	13.18

FIG.11

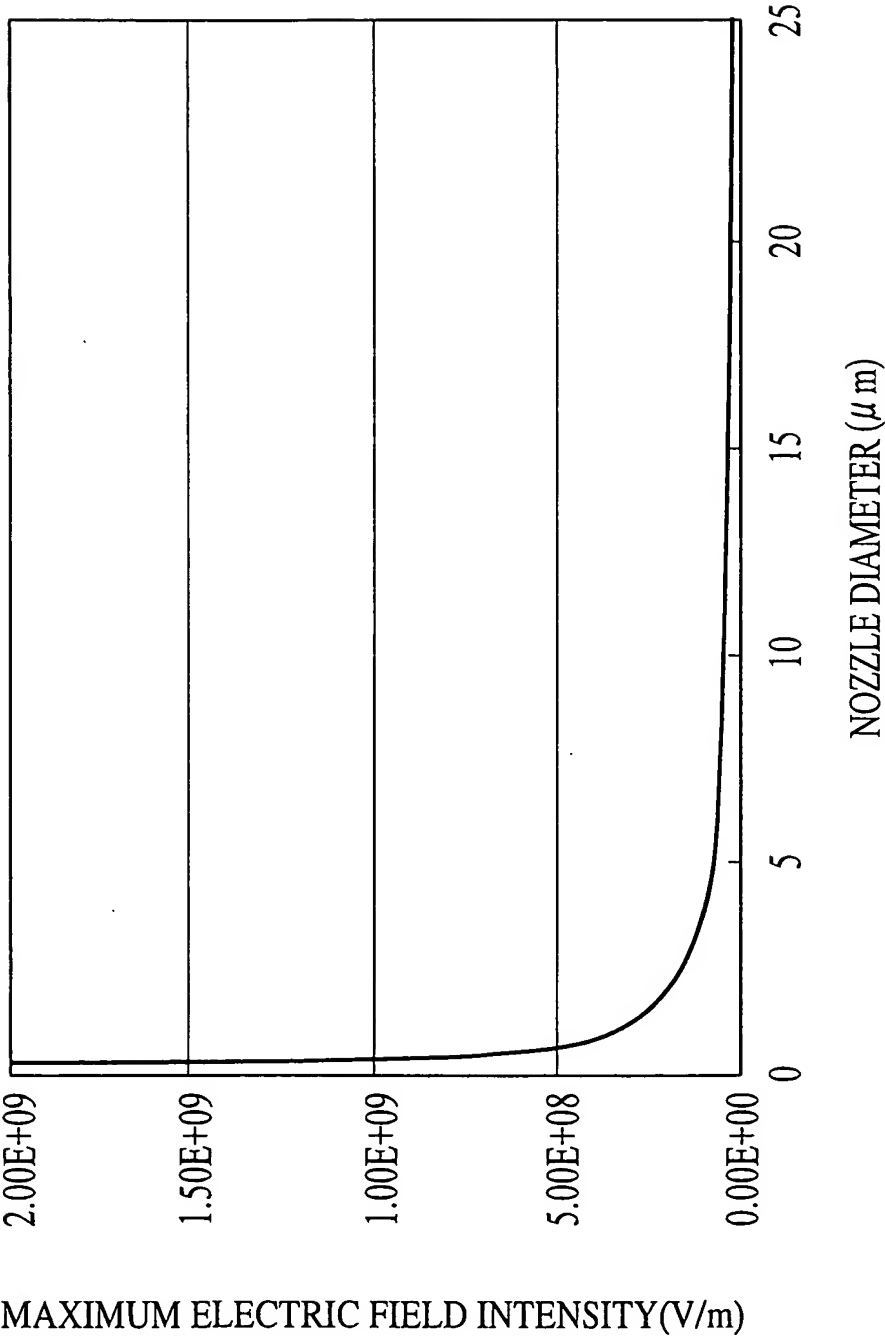


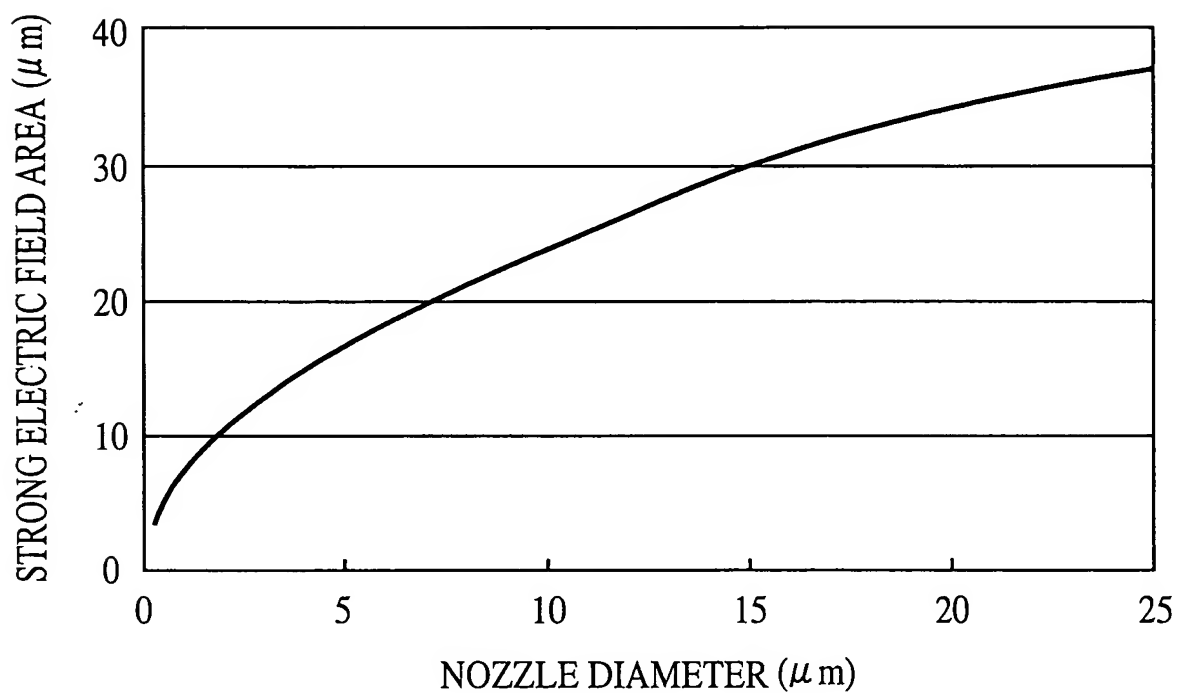
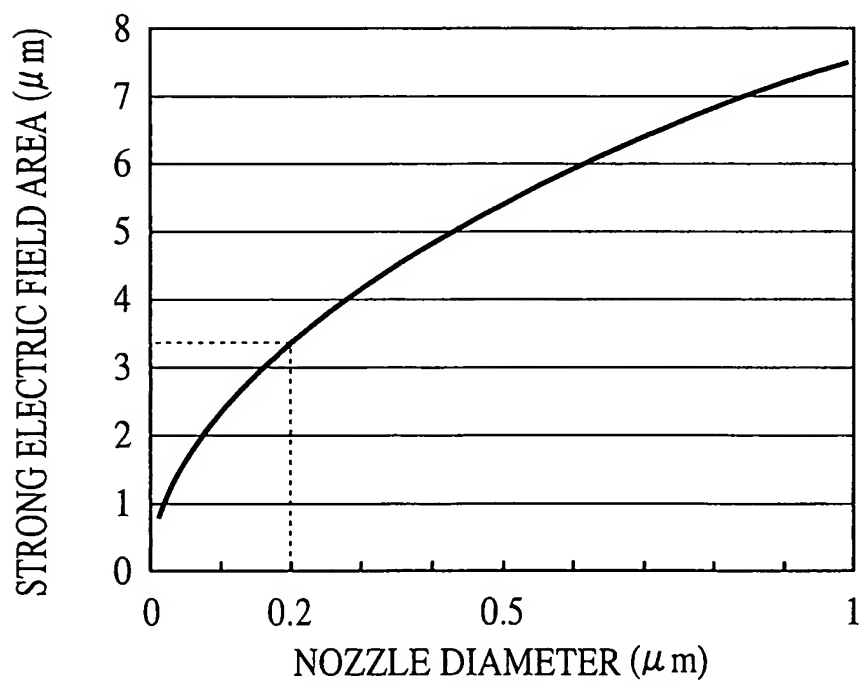
FIG.12A***FIG.12B***

FIG13

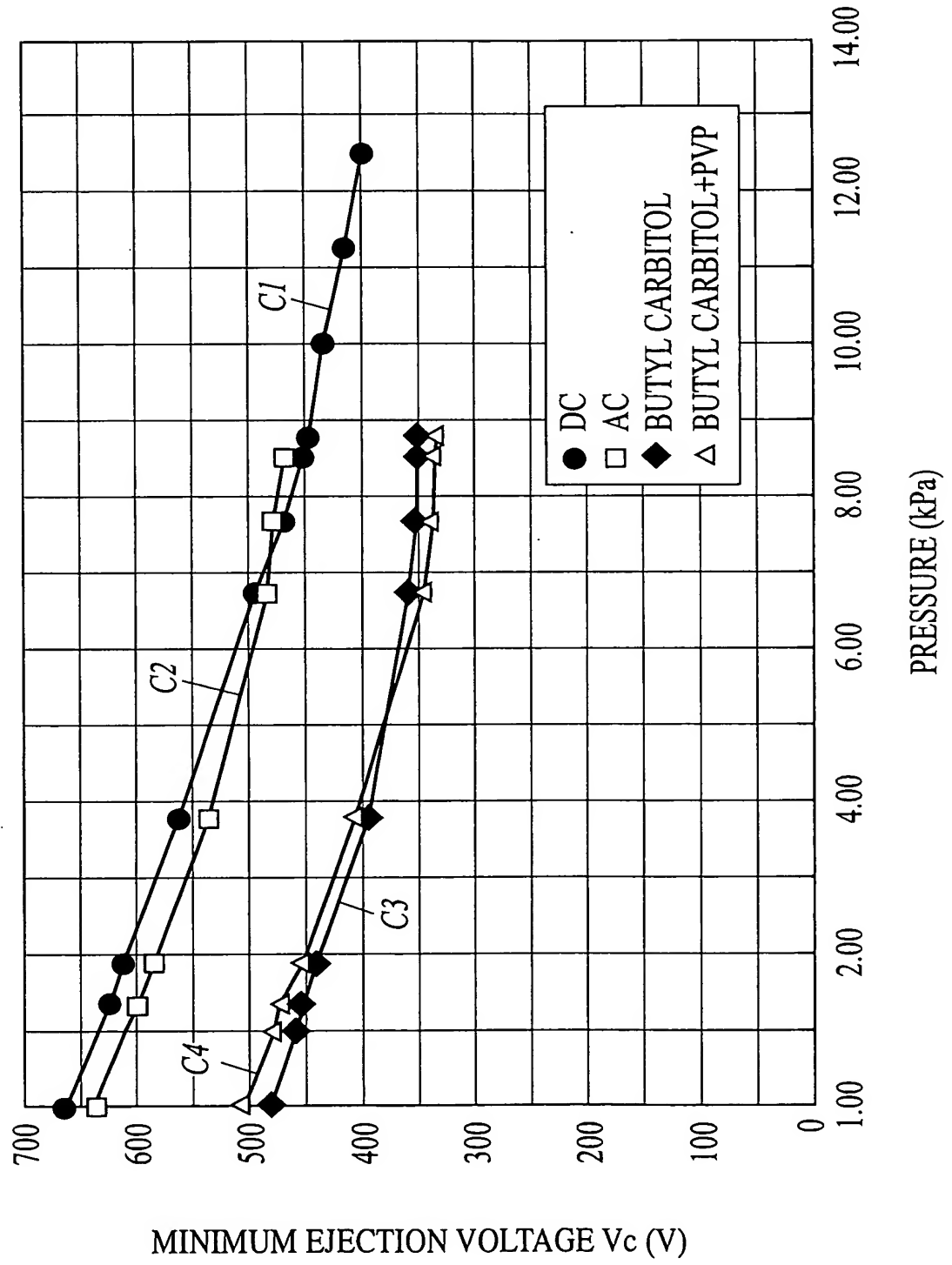


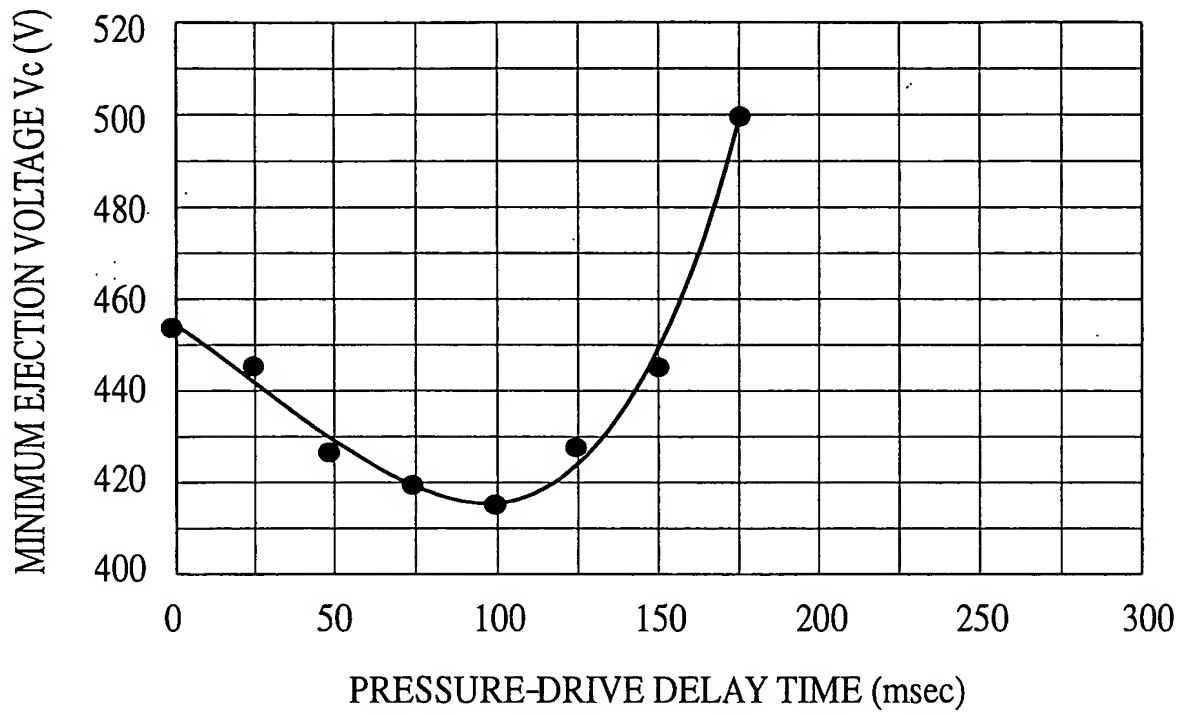
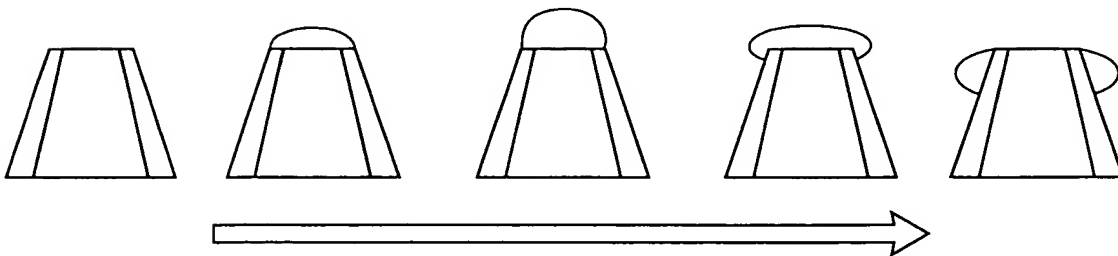
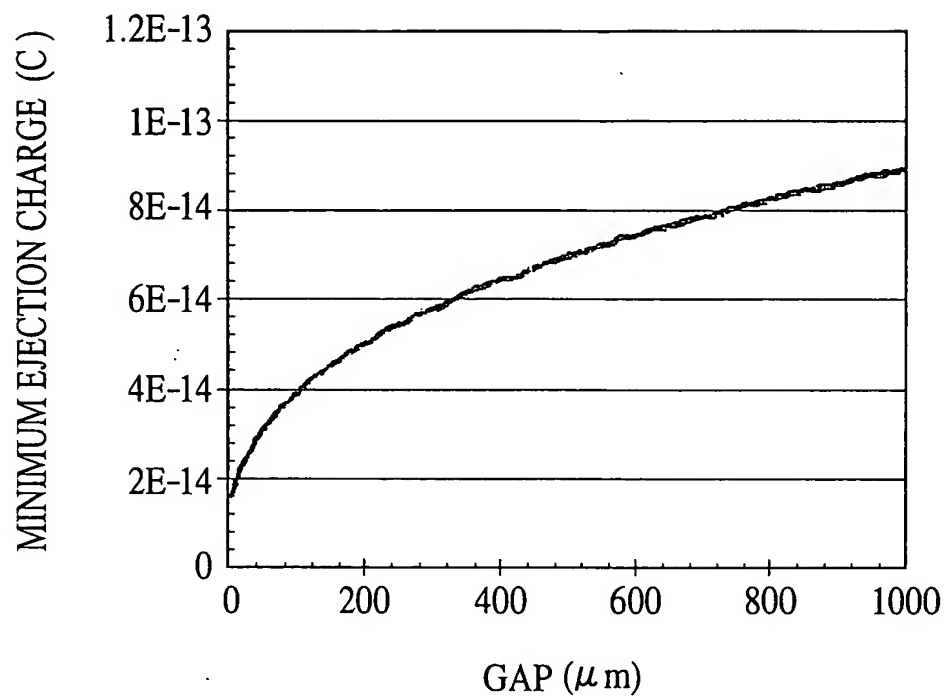
FIG.14A***FIG.14B***

FIG.15**FIG.16**

NOZZLE-SUBSTRATE GAP	MENISCUS CONTROL		
	NOT APPLIED	APPLIED	
		PRIOR ART (DC DRIVE)	PRESENT INVENTION (PULSE DRIVE)
50 (μm)	⊙	⊙	⊙
100 (μm)	X:ATOMIZATION	○	⊙
1000 (μm)	X:ATOMIZATION	○	⊙

FIG.17

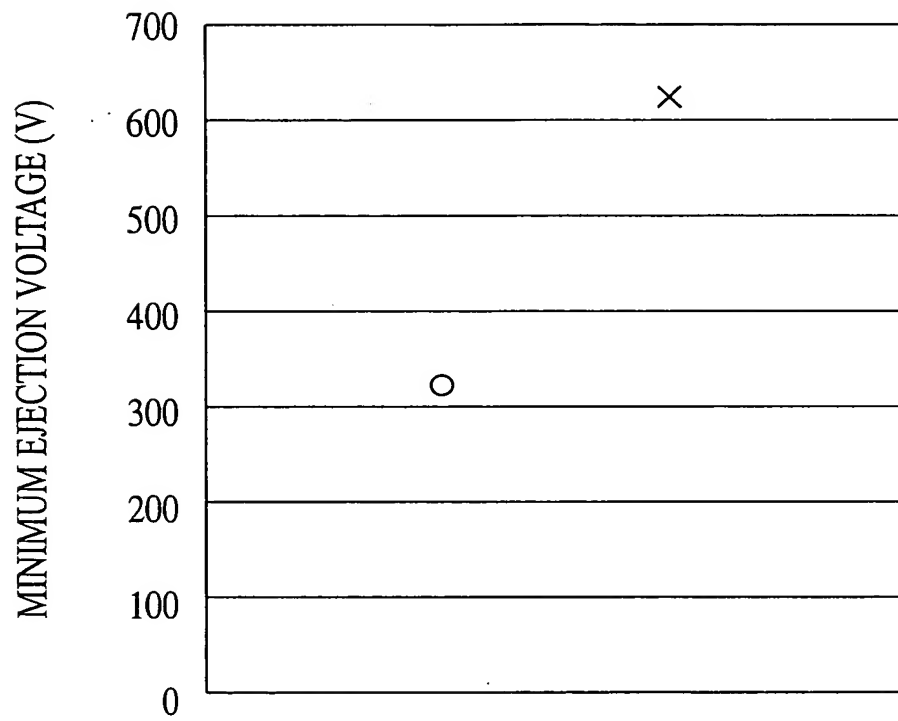


FIG.18

NOZZLE DIAMETER	DC BIAS VOLTAGE APPLIED	PULSE VOLTAGE APPLIED
30 (μ m)	NO OOZING	NO OOZING
10 (μ m)	OOZING	NO OOZING
1 (μ m)	OOZING	NO OOZING

FIG.19

NOZZLE DIAMETER	DC BIAS VOLTAGE APPLIED	PULSE VOLTAGE APPLIED
30 (μ m)	NO CLOGGING	NO CLOGGING
10 (μ m)	CLOGGING	NO CLOGGING
1 (μ m)	CLOGGING	NO CLOGGING